the best chance for recovery. If I were asked to mention the most essential requirements in cancer therapy I would unhesitatingly say, coöperation between surgeon and radiologist.

In cancer of the cervix we should really expect more favorable results than in other parts of the body. It is in the earlier stages accessible to direct radiation similar to the superficial epitheliomata of the skin or lip. It is only when the body of the uterus and the intrapelvic glands are affected that the case becomes uncontrollable. We must bear in mind that unless we can destroy the last cancer cell we may expect a recurrence. In other words, every retained cancer cell after an operation is a potential recurrent cancer. Since the individual cancer cell is not palpable or visible during an operation, the surgeon is not always able to tell whether any cells have been retained in the wound and thus it is essential that postoperative radiotherapy should be carried out most efficiently. Fortunately this can be carried out with greater ease in carcinoma of the cervix because the tube of radium may be placed in direct contact and into the cavity of the uterus. The additional x-ray treatment has also been efficiently worked out by experts.

One word about the correct and early diagnosis. Not every ulceration of the cervix in a woman who has borne children and who is suffering from an endocervicitis, is a carcinoma. In suspicious looking ulcers we resort to biopsy. In the smooth granulated ulcer I have usually resorted to a test by treating them with 20 per cent silver nitrate and bismuth application. The nonmalignant ulcer will usually yield to this treatment, but if it does not, then it becomes a suspicious case, and the biopsy clears the diagnosis.

*

C. G. TOLAND, M. D. (1930 Wilshire Boulevard, Los Angeles).—In a consideration of the treatment of carcinoma of the cervix it is impossible to state definitely that any one procedure is the best. Some of our leading gynecologists favor the use of radium alone, others frequently employ a radical operation, many advocate irradiation and operation combined, and a few use the cautery. Where there is such a diversity of opinion it can be assumed that no treatment is entirely satisfactory.

If the surgeon could be reasonably certain in the early cancers of the cervix, that the malignant cells had not extended into the parametrium; and that no general or local contraindications existed to an operation; then a radical operation would be the method of choice.

Unfortunately the number of patients with an early cervical carcinoma who present themselves for examination is extremely small. The onset of the disease is insidious and in the early stages the symptoms are not sufficiently striking to force the patient to submit to a rather indelicate examination.

Where the malignancy has extended beyond the cervix, an operation has very little to offer the patient. There is considerable danger of disseminating the cancer cells as a result of the operative trauma, and even in skilled hands there is some immediate mortality.

The combination of surgery and irradiation undoubtedly has produced excellent results, but there is some question as to whether the same results could not have been obtained with radiation alone.

In our own work the results from surgery have seemed so uniformly unsatisfactory that we have abandoned operative procedure entirely. For the past eight years all cases, whether early or late, have been treated by the radiologist exclusively. The combination of x-ray and radium has been employed, and even in the advanced cases rather surprisingly good results have been obtained, with the additional feature of practically no mortality.

In this field, as in operative technique, a high degree of skill and experience is necessary. Troublesome abscess formation, a prolonged proctitis, or other undesirable complications may follow too enthusiastic irradiation.

When the carcinoma has confined itself to the fundus of the uterus we have not found radium so effective. A radical operation has given the patient the best chance for a cure. The abdominal total hysterectomy has been the safest and most satisfactory.

THE LURE OF MEDICAL HISTORY

A NOTE ON THE MEDICAL BOOKS OF FAMOUS PRINTERS*

PART I

By CHAUNCEY D. LEAKE, Ph. D.
San Francisco

GOOD printing has always exercised its own peculiar fascination on those who love the beautiful, and with recent historical and artistic interest in the subject, as evidenced by the enthusiasm for finely printed private press work, it has become dignified to a fine art. It is one of the delightful sidelights of the historical study of medicine to follow along the developments in the art of printing. Almost all phases of the history of printing as a fine art may be traced in medical books.

THE ORIGIN OF PRINTING

In ancient Greek and Roman times, and all through the Middle Ages, books were painfully and slowly copied out by hand by professional scribes. Naturally this was a poor process, and very expensive. Only the very rich could afford books made by such a method and, of course, there was great restriction in the distribution of such as were copied. The manuscripts were usually richly bound and carefully preserved, for they represented wealth in view of their difficulty of production. In many libraries of the period these manuscript books were tightly chained to reading stalls and indeed this same practice continued in some cases after the publication of printed books.

It has always been supposed that the Chinese invented the device of movable type by which repeated impressions of the same figure might be made. It can only be proved that they used seals for stamping in quite the same way that the Romans and many other peoples used similar stamps. It remained for western ingenuity actually to invent printing.

The first printing effort to be successful was that initiated by Johan Gutenberg of Mainz in Germany. Here, after great labor in cutting the wood blocks to imitate as closely as possible the hand-made letters of the manuscripts, he published with Johan Fust, the first printed book, a great folio bible, between the years 1450 and 1455. The method of producing this book was kept secret. It was hoped that people would simply believe that the book had been put out in large numbers by the employment of a great many

* This preliminary study was inspired by the notable collection of medical classics exhibited by Dr. LeRoy Crummer at the University of California Medical School in February, 1929. Helpful stimulus has also been received from conversations with Dr. Sanford Larkey. It is hoped that their influence may maintain a lively interest in some of the more artistic aspects of medical publication among California physicians.

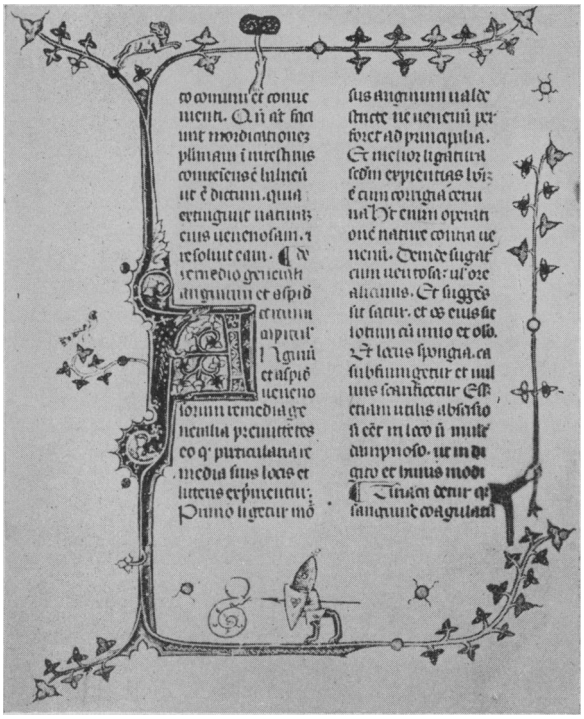

Fig. 1.—Illuminated page from manuscript of Juan Gil of Zamora, *Opus contra Venena,* written in Spain about 1400. Early printed books attempted to imitate manuscript work such as this.

scribes, and that the printing would appear to be real hand copying. All the early printed books attempted to imitate as far as possible the features of hand copying.

Along about 1465 Mainz was sacked by invaders in the sporadic warfare of the period and the printers were scattered over Europe. Even before this, however, Gutenberg and Fust had quarreled and had separated. Many of the better printers were attracted by the artistic patronage and appreciation of handicraft in Italy so that the best early printing developed from the presses in Florence and Venice.

Soon now a great flood of books were offered to the public, and at prices cheaper by far than could ever have been made by hand lettering. Education of the masses began in full blast. Naturally the wealthy aristocrats objected, and at first many obstacles were placed in the way of the printers. Permission had to be obtained for printing, and all sorts of difficulties were brought up. The wealthy continued for a time to have their books hand-lettered and bound as sumptuously and as richly as could be.

THE FIRST MEDICAL BOOKS

Medical manuscripts, of course, were among the most precious of those handed down and copied through the ages. Most of them are now in the great European libraries, and their comparison is one of the hardest tasks of the scholars. With the introduction of printing, hand sheets calling attention to certain ways of maintaining health in plagues or epidemics were circulated during the seventh decade of the fifteenth century. Not counting the works of Pliny and Aristotle, which were early printed, one of the first medical books was a little tract on poisons written by Peter of Abano, and published for the use of the medical students at Padua in 1473. But the first real medical book of any consequence to be published was the magnificent folio of Aulus Cornelius Celsus, *De medicine libri octo,* 1478. This was issued from the press of Nicolus Jensen of Florence, in Italy, and became famous as one of the first books to introduce the new Roman letter. As was said before, the first books attempted to imitate as closely as possible the rather thick, heavy hand lettering of the scribes. Books which continued to use this heavy sort of type are now said to be printed in **black letter.** The type was usually what we refer to commonly as "Old English." The plain slender grace of the ancient Roman lettering carved on the monuments and inscriptions all over the Roman Empire was not adopted into book printing until the time of Nicolus Jensen. Jensen's Roman type has become very famous, and within recent years some of the leading typographers, such as Bruce Rogers, have come back to the use of modified Jensen type.

This book of Celsus is one of the real classics of medicine. Celsus was a Roman gentleman who apparently lived during the Augustan era, and who wrote a number of books on various aspects of the classical Roman civilization. He was what might be called the first encyclopedist. His book on medicine was not popular at the time it was written, but with the advent of printing became one of the chief medical authorities, and went through some one hundred and five editions, and is still widely read for its classical charm and its good common sense. It was the chief medical work written in Latin. Most of the other authorities appeared in Greek, and one of the tasks of the Renaissance scholars was to get a good Greek manuscript and make a readable Latin translation from it.

THE INCUNABULA

An interesting arbitrary convention among bibliographers assigns special value to any book printed before 1500. Such a book is called an *incunable,* or "cradle book," and most careful pedigrees have been worked up for all such books. For example, an exact census is kept of all such books which may have found their way into the United States.

The leading authorities on incunabula were Hain and Copinger, who tried to make a complete check list with accurate descriptions of all the incunabula. Booksellers and bibliophiles use such a check list to "collate" copies they have. Sir William Osler made a similar check list for medical incunabula up to 1480. He lists some one hundred and seventy medical books printed up to that time. The chief ones are Aristotle, Avicenna,

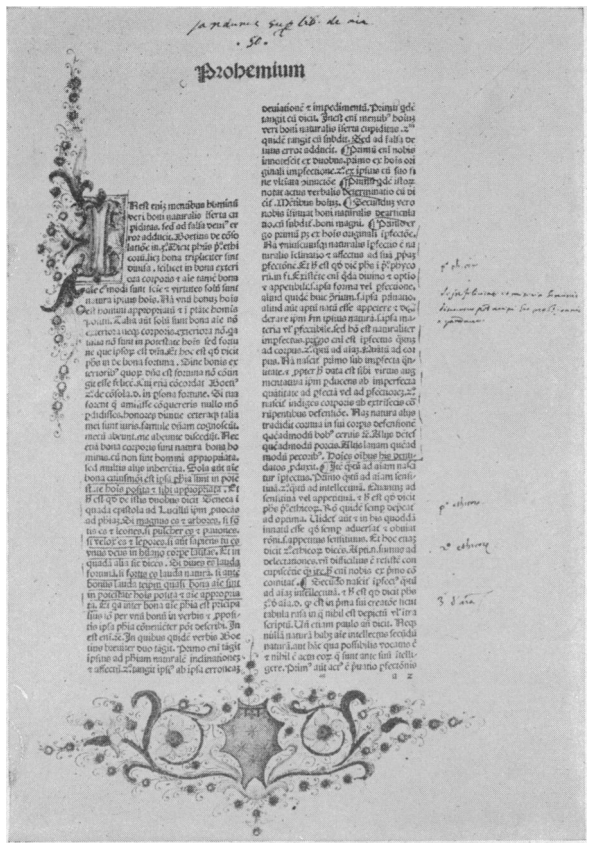

Fig. 2.—First page of Johanis de Jaduno, *Tres libros de anima Aristotelis*, published in Venice, July 1, 1480, by Johanis Colonie. Note how type and illumination imitates manuscripts of period.

Dondis, Celsus, Dioscorides, and Pliny. It is remarkable that the real Renaissance authorities in medicine, Galen and Hippocrates, were not printed until after this time.

Check lists of medical incunabula in leading American medical libraries have been published from time to time in *The Annals of Medical History*. The chief collections of medical incunabula in this country are in the Surgeon-General's Library and in the College of Physicians in Philadelphia. Sir William Osler's collection is with his historical books at McGill. In the recently issued *Bibliotheca Osleriana* there is a full description not only of Osler's incunabula, but also of all the finely printed books in his great collection.

THE FIRST ILLUSTRATED MEDICAL BOOK

In 1493 there appeared in Venice a huge folio volume called *Fasciculus Medicinae,* which purported to be a collection of little medical works assembled by a certain Johannes de Ketham. It included the anatomical notes of Mundinus, a celebrated Bolognese professor, the first to revive formal dissection, and a tract or two by Rhazes, the great Arabian physician. This book at once became popular, and in 1500 and later in 1513, was republished in most magnificent form. The publisher was the celebrated Gregorius de Gregoris, one of the best of the early Venetian printers, and his fame was muchly enhanced by this beautiful book. It has been called the finest illustrated book up to the time, and it was the first illustrated medical book.

The illustrations are very clear, simple, architectural line-drawings, which have been transferred to wood with consummate skill. The "statuesque ease" of the figures, and the firm, simple outlines of the settings, have won for these pictures the admiration of all artists.

There are in all ten cuts in the book. There are the traditional "wound men" and "bleeding men," and also the traditional circle of urine glasses. These pictures, in crude form, had been circulated for some time as separate sheets, and showed the places on a man where he might be bled, and the colors of the different types of pathological urines, or the kinds of wounds a man might receive. But the best of the pictures are those of the professor in his chair, supposed to be Petrus de Montagna, reading to his students from some authority, while his prosector points out on a cadaver below the parts of the body exposed by the menial barber. The other is the very beautiful sickroom scene, in which an elderly woman is shown reclining on a high bed while one servant smoothes the sheets and another brings food. Below are two pages holding incense tapers, for the patient has plague, while a physician feels the pulse of the sick woman, meanwhile holding an aromatic sponge to his nose to keep away the infection. This picture is reproduced for this article.

Gregorius really fostered illustrated medical books. He used some of his cuts for several different books. For instance, in 1502, he issued a collection of some of the supposed medical books from the famous school of Salerno, under the name of Articella, or Johannitius, and called *Liber Ysagogue*. This carried a cruder picture of the "bleeding man," and is here reproduced in order to illustrate the kind of picture this famous representation was. The various points on the

Fig. 3.—Sick room scene from Ketham's *Fasciculus Medicinae*, Gregorius, Venice, 1500, the finest illustrated book to that date.

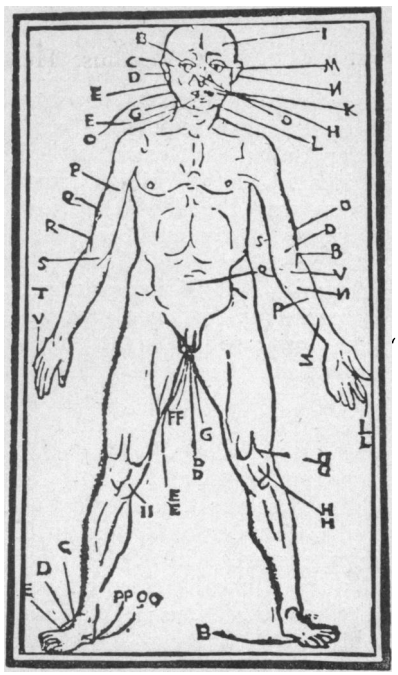

Fig. 4.—"Bleeding man," from Articella, *Liber Ysagogue*, Venice, 1502.

body show the places from which blood may be drawn.

THE ALDINE PRESS

The original printers did not use a title page. To have done so would have spoiled the illusion of the work having been hand-lettered like a regular manuscript. The custom developed of putting a little note, called a *colophon,* at the end of the printing, telling by whom the work was done, where, and when. Later the printers began to use a distinctive mark, or printer's device, with which to identify the books made by them. One of the first of these famous devices was the anchor and dolphin of the great house of Aldus Manutius, the founder of a family of celebrated Venetian printers. He was also among the first to use a title page. This was a very simply printed front page telling what the volume contained and also carrying the device as an identification.

But the Aldine Press is chiefly renowned for its introduction of *italic* type fonts. The older type fonts were based on the hand-lettering of the scribes or upon the carvings of the ancient Roman stonecutters. The beautiful *italic* style is said to have originated from an attempt on the part of the Aldine Press to imitate in type the delicate handwriting of Petrarch, the great Renaissance humanist and author.

Among the famous Aldine medical books is an early edition of Celsus, printed in 1528, entirely in *italics*. This is one of the first medical books to have a title page. With the clarity and brilliance of its type, and the fine quality of the paper used, it is indeed a book well worth cherishing.

Another famous book from the Aldine Press is the first Greek edition of Hippocrates. This appeared in 1526, and contained all the supposed works of Hippocrates in the original Greek. The character of the Greek type used became famed as the prototype of similar fonts employed by later printers.

The Aldine Press achieved great renown through its publication in magnificent format of the chief classical writers of antiquity. The publication of these books not only was a commercial success, but it also contributed in a marked degree to an appreciation on the part of the people at large of the finer literary remains of the ancients.

GREAT FRENCH PRINTERS

Printing did not make a good start in Paris; the city was too much under the control of the conservative aristocrats. In Lyons, however, nearer the artistic centers of Italy, fine printing early flourished.

Most of the early sixteenth century books of Lyons, however, were still printed in black letter. The newer fonts were slow to be introduced. Among the prized early medical books from Lyons are various works of Symphorien Champier, 1472-1539, the great French humanist who did so much to give the real meaning of Galen and Hippocrates, and who, using his name as a clue, perhaps, tried to harmonize, or produce a symphony from the conflicting ideas of Galen, Hippocrates, Aristotle, and the Arabs. This work was the octavo *De medicinis claris scriptoris,* issued by Etienne Gueynard, in 1506.

Gilbert de Villiers was another important Lyons printer, who issued the beautiful second edition of Dioscorides as a quarto in 1512. This carried one of the best sixteenth century woodcuts on the title page, a variant of the familiar scene of an author presenting his book to his patron. Another important work published by Villiers was the *Opera Parva* of Rhazes in 1511. This again was in the convenient octavo size.

The earlier printers published their books in the regular large folio size of the ordinary manu-

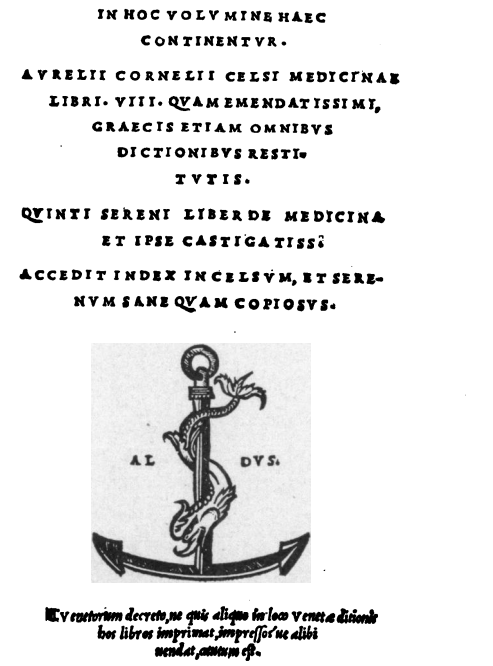

Fig. 5.—Title page to the 1528 Aldine edition of Celsus, showing the Aldine device and *italics*.

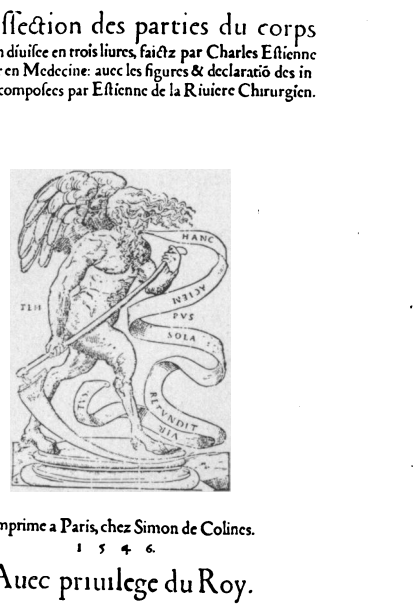

Fig. 6.—Title page to Charles Estienne's *La dissection des parties du corps,* published by Simon de Colines in Paris, in 1546.

scripts. It was the Lyons printers who popularized the more convenient smaller sizes. Books are usually classified by size according to the number of times the printed sheets are folded in binding. Just folded once they are "in folio." Folded to give four pages, they are "in quarto"; to give eight pages they are "in octavo," and so on.

The most famous Lyons printer was Gryphius, who appropriately enough used a griffin as his device. In 1532 he published in 12mo one of the first authoritative Latin translations of the Greek of Galen and Hippocrates, made by the great Francois Rabelais, author of the first novels, *Gargantua* and *Pantagruel.* Rabelais lectured for many years on medicine, and is even supposed to have written his witty novels in the attempt to make his sick patients laugh and thus the more easily get well.

In these handy little formats most of the ancient medical authorities were issued from the busy press of another more strictly medical printer in Lyons. This was Rovillius, whose device may be seen on many of the early Renaissance medical texts. He put his books out especially for the use of students—that is, in a handy form, and at a little more reasonable price than that charged for the more magnificent tomes of other printers.

With Simon Colines, Paris came into its own in the fine art of printing. The bootlegging of Lyons books into the capital made it apparent that there was real demand for good books, and Colines secured the ecclesiastical permission to do his best. He issued many texts of Galen, with translations made by the best literary men of the time, among them Thomas Linacre, who founded the Royal College of Physicians of London, and Guinter of Andernach, one of the teachers of Vesalius. He also issued in 1537 one of the rare little medical tracts of Michael Servetus, who discovered the pulmonary circulation, and who was burned under Calvin at Geneva in 1553 for his theological ideas. One of Colines' most ambitious medical books was the *De dissectione partium corporis humanis* of Carolus Stephanus, or Estienne (1506-1564), who was himself a member of a great family of Parisian printers, and who antedated Vesalius in trying to make a real study of the human anatomy. Unfortunately this fine folio did not have the same artistic plates that made Vesalius' work so successful, and it was not published until two years after the appearance of Vesalius' book.

The Stephanus family, Robert, Charles, and Henri, published several fine medical works. The first folio of Alexander of Trales, in Greek text, came from their press in 1548. Henri himself wrote and printed one of the first and handiest medical dictionaries, the *Dictionarium medicum* in octavo in 1564.

University of California Medical School.

(Part II of this paper will be printed in the February issue.)

Note: Pictures of the title pages of many of the books mentioned above may be seen in Sir William Osler's *Evolution of Modern Medicine,* New Haven, 1920. In the huge catalogue of his library, compiled by W. W. Francis, Archibald Malloch, and L. L. Mackall (*Bibliotheca Osleriana*), one may find interesting notes on many of the significant finely printed medical books. One may also turn to the many beautiful catalogues issued by Maggs Bros. of London, R. Lier of Florence, and Hertzberger of Amsterdam, for items about the medical books of the famous presses of the world.

CLINICAL NOTES AND CASE REPORTS

EXTENSIVE FRACTURE OF SKULL*

REPORT OF CASE

By S. Nicholas Jacobs, M. D.
AND
Lawrence M. Trauner, M. D.
San Francisco

THE following case is interesting from the standpoint of the great amount of damage sustained by the skull, yet resulting in complete recovery of the patient.

F. L., male, white, age twenty-two, on February 12 was thrown to the street from a motorcycle, striking his head against the curbing. He was rendered unconscious for about five minutes, after which he was semistuporous. Upon removal to the Sutter Hos-

* From the Sutter Hospital, San Francisco.

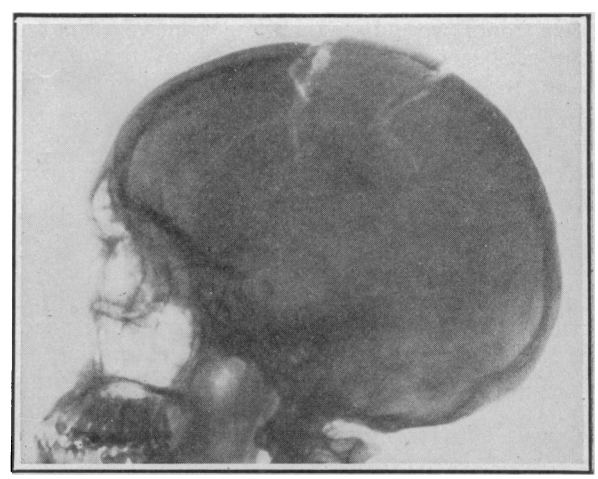

Fig. 1.—Lateral View